

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference JL-21062-PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/KR2003/002553	International filing date (day/month/year) 25 NOVEMBER 2003 (25.11.2003)	Priority date (day/month/year)
International Patent Classification (IPC) or national classification and IPC C07D 339/04(2006.01)i		
Applicant CJ CORPORATION et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 28 MARCH 2005 (28.03.2005)	Date of completion of this report 16 MARCH 2006 (16.03.2006)
Name and mailing address of the IPEA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer KIM, Hee Sue Telephone No. 82-42-481-5605 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR2003/002553

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1. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement) under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language English which is

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☒ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed," and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

PCT/KR2003/002553

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	4-7	YES
	Claims	1-3, 8	NO
Inventive step (IS)	Claims	4-7	YES
	Claims	1-3, 8	NO
Industrial applicability (IA)	Claims	1-8	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The present invention relates to a thione derivative or a non-toxic salt thereof which is effective in reducing inflammation, pain, or fever, a method for preparing the same, and a pharmaceutical composition containing the same as an active ingredient.

The following documents have been considered for the purpose of this report:

D1 = Yakche Hakhoechi, 2003 JUNE, Vol. 33(2), pp 105-112 & CA 140:246247

1) Novelty

D1 discloses screening of anticancer potential of celecoxib and its derivatives, among which 150 synthetic compounds have been shown to have anti-proliferative activities in vitro.

The subject matter of claim 1-3, 8 does not appear to be novel over document D1, which already discloses the identical compound to formula 1 (4-(4-bromophenyl)-5-(4-methanesulfonyl phenyl)-[1,2]dithiol-3-thione (example 40 etc.)) in the present invention and its use.

A propionic acid derivative represented by formula 2 (claim 4) and a method for preparing a thione derivative of formula 1a or a non-toxic salt thereof (claim 5-7) are not disclosed in any of the prior art.

The subject matter of claims 4-7 can therefore be regarded as being novel under PCT Article 33(2).

2) Inventive Step

When the inventions of D1 are compared with the novel compounds of claims 1-3 in terms of their structures, formula 1 has the similar mother moiety and different substituents compared with celecoxib derivatives in Document D1.

(Continued on Supplemental Sheet.)

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of:

Box V.

However, in view of D1, the skilled person would regard it as a normal design procedure to change the substituents. Moreover, there is no reason to see that the above compounds of the present invention are more effective than the compounds of D1 in their pharmaceutical effect.

Therefore, the subject matter of claims 1-3, 8 is not considered to involve an inventive step. [PCT Article 33(3)]

There is no indication in the cited document which would have led the skilled person to invent a propionic acid derivative represented by formula 2 and its method.

Also, the applicant shows some advantages of a propionic acid derivative represented by formula 2 such as a useful effect on the treatment of fever, pain, and inflammation.

Therefore, the subject matter of claims 4-7 is considered to involve an inventive step under PCT Article 33(3).

3) Industrial Applicability

The subject-matter of claims 1-8 appears to be industrially applicable (Art. 33(4) PCT).

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